REMARKS

The foregoing amendments and these remarks are supplemental to the amendment filed September 18, 2009 in response to the Office Action dated July 20, 2009.

Applicant notes that none of the new or amended claims contain subject matter extending beyond that of the application as filed. Claim 1 has been amended by adding a clarification which may be derived from the description as filed. It is inherent that the critical load angle corresponds to a normal operation of the pump (high level), while the risk of operation under vacuum conditions is mentioned in the description at page 3, lines 3-6. Newly added claim 13 also contains subject matter which may be unambiguously inferred from the original description (for example see page 9, line 21 to page 10, line 25 and figures, such as figure 7).

Claim 1 is patentable over the cited prior art. According to the Office Action, a skilled person would learn from U.S. Patent No. 6,710,562 to Kalb et al. ("*Kalb*") how to control a synchronous motor by comparing two subsequent load angle values, and would be able to apply such a teaching to a synchronous pump controlled by a float level sensor as recited by claim 1. Applicant respectfully disagrees with this assertion. As already stated in Applicant's previous remarks, *Kalb* describes a control method for a window winder driven by a synchronous motor.

As may be read at column 3, lines 41-43 of *Kalb*, such a synchronous motor is operated at a constant load angle δn by readjusting its field current during operation. The controller of the motor computes the deviation from δn of the actual load angle δ before each readjustment step. If such a deviation exceeds a preset threshold value, readjusting of the current is interrupted (see columns 3-4, lines 49-19). Hence, the system inherently controls the increase rate of the load angle. Given that the increase rate is low enough, the resisting torque may gradually raise without triggering any control action in the system. Column 4, lines 39-54 teaches how to store an upper threshold for the above-mentioned increase rate. The upper threshold is computed when the resistant torque increase due to approach of a stopping element.

In contrast, the device of claim 1 includes a permanent-magnet rotor where the field current readjustment is not applicable. Consequently, the device may not monitor a change rate of the load angle in the above-described way. To the contrary, the only control action taken is to

ensure that the load angle is maintained above a given threshold. Also, because the load angle is not readjusted, it is always proportional to the motor torque. This is not the case in *Kalb's* device.

In addition, the critical load angle (δ) recited by claim 1 corresponds to a normal operation of the motor, with no risk of operating under vacuum condition. To the contrary, the threshold rate stored by *Kalb* is computed during a shutdown of the motor. Consequently, *Kalb's* controller needs a trial run to be set. In contrast, the present controller may acquire the critical load angle (δ) during its normal operation, and later recognize a shut-down condition which never occurred before.

Moreover, the device of claim 1 employs a sensor to check the high level condition in which the critical value of the load angle is acquired. *Kalb* does not disclose any sensor meant to enable the storing of the threshold rate. Such a rate may be taken as the last variation of the load angle before the final stop of the motor.

Furthermore, the device of claim 1 turns off the motor when the load angle drops below a given threshold. *Kalb's* device interrupts readjustment of the current (which does not necessarily result in motor shutdown) when the increase rate of the load raises above a given threshold. It should be clear from such a comparison that the "critical values" are stored by the two systems in order to achieve completely different purposes.

For the foregoing reasons, a person skilled in the art would not be able to integrate the broad teaching of *Kalb* within the device of U.S. Patent No. 6,390,780 to Batchelder without further indications or teachings which are not contained in the prior art made of record. Hence, Claim 1 is not obvious, and is therefore allowable.

Dependent claims 2 to 12 are also in condition for allowance, based on their dependence upon an allowable base claim, and because of the further features recited.

Independent claim 13 is also new and inventive over the prior art cited. Please note (for example) that none of the references cited suggests to check the condition on the load of the pump only when a float sensor indicates a low level condition.

Applicant has made every effort to present claims which distinguish over the prior art, and it is thus believed that all claims are in condition for allowance. Nevertheless, Applicant

invites the Examiner to call the undersigned if it is believed that a telephonic interview would expedite the prosecution of the application to an allowance. In view of the foregoing remarks, Applicant respectfully requests reconsideration and prompt allowance of the pending claims.

Respectfully submitted,

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